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IN TWO SECTIONS

Section I

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Types of Office Forms and Their Design, by William C. Hunn..... 645

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EDITORIAL DEPARTMENT NOTE

Increased clerical work coupled with a shortage of help has presented a real problem for many accounting departments. Office procedures are being revised to eliminate work which is least essential under wartime conditions, and ways and means are being developed for making more effective the work of the available employees. This later objective may often be attained through a survey of office forms, with particular reference to design and type. Forms are the tools of the clerical worker, improvements in design and type have taken place in recent years, just as they have taken place for mechanical tools. The article in this issue of the *Bulletin* is intended to bring you up to date on these developments, and to provide you with a basis for an intelligent study of the forms in use in your company.

The author of this article, William C. Hunn, has had the benefit of fourteen years' experience in the field of form design and adaptation. For the past eleven years he has been associated with the Accurate Sales Book Co. of Milwaukee, of which he is Vice President. Prior to joining his present company Mr. Hunn, who is a member of the Milwaukee Chapter, was associated with the Underwood Elliott Fisher Co.

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TYPES OF OFFICE FORMS AND THEIR DESIGN

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FORMS writing has become a factor of major importance in achieving sound business control. We are learning that in order to achieve maximum efficiency we must handle in the most economical manner the forms necessary to modern business. This economy is not necessarily gained through low material cost but through considered and wise application of all of the available labor-saving developments which have in recent years received a tremendous impetus.

Printed forms are vital tools in the conduct of business. In these days of all-out effort, the best tools obtainable should be supplied for every job. The high pressure of productive output today, has created a situation where forms and reports are constantly being called for and as a result the avalanche of forms is growing like a snowball rolling down hill.

While the various departments of most businesses are well organized and carefully supervised, all too frequently the forms which play such an important part in every function of business activity, like Topsy "just growed." In too many instances the departments originating a new form, take upon themselves its layout, design, and construction with very little or no regard for the requirements of other departments which will be affected.

Since printed forms so vitally affect the efficiency or inefficiency of the work of all of the personnel in an organization, they must be designed with clerical economy as one of the prime considerations. Only by so doing will it be possible to fill the gaps left by those who have gone off to war or to serve their country, conserve office machines, and enable them to take on additional volumes of work.

Check Questions

Keeping clearly in mind the aim to reduce unproductive operations both manual and machine, and critically analyze each form on the following basis:

1. Does the form by title and arrangement clearly designate its purpose?

2. Does each leaf in a multi-copy set clearly indicate the department for which it is intended?
3. Have colors been used to facilitate sorting, distributing, filing and identification?
4. Should the record be pre-numbered consecutively, and if so, is the number in a key position for easy and quick filing or reference?
5. Does the form show form number, date and quantity ordered and name of printer or supplier?
6. If filed, is the size one which fits a standard file?
7. Does the grain of the paper run vertically through the form so that it will stand upright if filed?
8. Is the weight of paper stock consistent with the use and amount of handling it will receive? (Unnecessarily heavy copies impede legibility on multi-copy forms and take up costly filing space.)
9. Are both the lineal and horizontal spaces correct for machine writing? On standard typewriters lineal spacing is ten characters to one inch, horizontal spacing six lines to one inch.
10. If the form will be mailed, has it been made to fit a standard window envelope?
11. Is the typed information arranged with consideration given to the continuity of the items so that waste motions of line spacing and tabulating are eliminated? This can be readily accomplished by spacing items horizontally rather than vertically on a form to enable the operator to continue lineal typing instead of taking her hands from the keyboard to shift from one line to another.
12. Does the arrangement of typing correlate with the same arrangement of information on the media from which the typing is done?
13. Have the users of the form been consulted for suggested improvements, additional requirements or possible elimination? In all cases, determine whether or not the form is actually needed.

14. Can the form be combined with other records, eliminating the necessity for separate typing?
15. Taking into consideration the probability of revision and the rate of use, is the quantity to be ordered most economical from a manufacturing standpoint?
16. Does the nature of the application and the volume of work require the use of a special labor saving style of form such as continuous or snapout sets?

Standardization of Sizes

The standardization of business form sizes is a most important matter to be taken into consideration when thinking in terms of the actual material cost of the forms. Although there may be occasions where odd sizes are absolutely necessary because of handling or filing, most forms now being used could be easily revised to take advantage of the most economical cut in paper stock, without any decrease in the efficiency of the form itself.

Since paper stock is furnished to printers or processors by the manufacturing mills in certain standard sizes of flat cut sheets or rolls, it is of value to a form designer to acquaint himself with these sizes, so that he may effect economies through the revision of sizes of forms now in use, or in the design of new ones.

The most frequently used standard sizes of flat cut sheets are as follows:

11" x 17"	17" x 22"	11" x 34"
12" x 19"	17" x 28"	14" x 34"
14" x 17"	19" x 24"	22" x 34"

This wide variety of sizes will permit smaller forms of standard sizes to be cut from them evenly or without waste.

Recently, the War Production Board has carried the matter of standardization one step further by limiting manufacturers to certain weights and colors of bond paper stock. Bond papers may now be manufactured in only four weights, 10#, 12#, 15# and 20# and six standard colors, white, blue, pink, green, canary and goldenrod.

When flat bed equipment is used in the printing of business forms, presses of various sizes may be employed with the most

economical manufacturing size being dependent upon the size and quantity of forms desired.

If the forms can be made to conform to standard sizes, they can be cut out of the larger sheets evenly without waste. On the other hand, if the forms deviate from standard sizes, resulting in an excessive amount of trim, the cost of such waste must be included in the material cost of the item being manufactured. Often, an odd size form which closely approximates a standard size, must be printed on a larger size press than would ordinarily be used, while a slight reduction in either the length or width would make possible the use of a smaller press and more economical manufacture.

The same economy of standardization can also be applied to forms manufactured on high speed rotary presses. On this type of equipment, the factors to be taken into consideration are the various standard widths of paper which can be secured in roll form, and the circumference of the printing cylinder.

Continuous and snapout forms are manufactured on this type of equipment, and since various sizes of cylinders may be used, it is well to check this matter of size with the forms manufacturer, so that the most advantageous form size is being ordered, eliminating costly and unnecessary waste and trim.

Adherence to standard sizes is an important factor in keeping the cost of business forms to a minimum, and in the conservation of material, which is all important at this time.

Use Colors to Save Time, Work and Money, and to Prevent Mistakes

The proper use of available colors of paper in printed forms is the practical working out of the recognized fact that color attracts the eye more quickly than either form or size. A sound, well-thought-out system, using all the advantages of colors of paper, costs practically nothing to install and if wisely used, will effect savings in time by making forms more efficient through easy and instantaneous recognition. In some organizations changes in colors of paper for each department in departmental forms has had many advantages. Rush orders flagged by a distinctive color are assured of prompt attention. Change of color on a monthly basis on a form which is filed but referred to frequently for follow-up pur-

poses, can be very helpful. Work tickets, time tickets, collection letters, and production reports may be separated or found at a glance by using different colors of paper for each quarter or for each month.

In a pile of papers it is no easy task to pick out just the one which is wanted, but if different forms are made distinctive through the use of various colors, any form can be located at a glance without the loss of time incurred by stopping to read it. Office employees can pick out any form instantly and infallibly, having grasped the simple trick of identifying each by its color. If all forms are printed in white paper, the labor cost in handling them, assorting, classifying, distributing and filing, is extremely high, with the possibility of costly delaying errors considerably increased. Variations in the size or shape of the forms required as an expedient towards easy recognition is not recommended when the use of colors can be substituted.

When colors of paper are used in a multi-copy set, it is recommended that the copies farthest from the top be in pastel shades and that the deeper colors be used at the top. It has been found in forms requiring a large number of copies that colors, such as goldenrod, buff, canary yellow, light pink and salmon, are much more legible than other colors which might be selected. If a one-time carbon form is being designed, it is well to keep in mind that both blue and black one-time carbon can be furnished. The color of the paper and the carbon should be selected so as to get the best contrast, especially on copies which are far down in a multiple copy set.

Various Types of Continuous Forms

To increase office efficiency, and to keep the hands you have hired to do your typing, billing and bookkeeping busy at the tasks they are paid to do, several types of continuous forms have been designed. Through their use, waste operations and useless tasks, such as stuffing carbon, jogging, inserting, realigning, adjusting, and removing carbons, are eliminated. Business conditions today demand maximum efficiency, short cuts, and faster ways of doing routine work. Shorter hours coupled with higher wages and reduced individual output make it harder than ever to do business at a profit. By speeding up productive work, eliminating useless

tasks, reducing errors, and avoiding red tape, overhead costs can be cut.

Let us first consider the fanfold type of continuous stationery. In fanfold forms the various copies in the set are printed successively on a wide continuous web of paper and then are folded vertically along perforated edges so that all copies lie in absolute alignment. They are again folded on horizontal perforations, forming a uniform pack of continuous stationery, consisting of 500 to 1,500 sets of forms. Fanfold forms are used in standard fanfold billing machines or in regular typewriters equipped with simple but efficient fanfold adapters. The forms usually issue from the billing machine or typewriter joined at the sides, convenient for further extension, weights, etc. They can issue separately, however, if desired. Perfect alignment and perfect registration are assured on from two to fifteen copies. This type of stationery is designed for use on Underwood Fanfold Writing Machines, Burroughs Fanfold Billing Machines, Remington Fanfold Billing Machines or The International Electromatic Formswriter.

This type of stationery is reasonably flexible and allows for considerable variety of treatment. Printed block-outs can be easily arranged on any number of forms, or mechanical block-outs, through the use of either strip carbon, narrow carbon, or narrow forms, can be secured. When additions, extensions or changes must be made at some later time and on other equipment, carbon spotting or stripping can be used or an entire section of the form can be interleaved with one-time carbon. Since an entire section of a fanfold set or the entire form must be printed on one web of paper, variations in color, weights, or grades of paper are not obtainable. However, colored inks for the various sheets in the set, together with distinctive corner design, distinguishing letters, marginal headings or borders, are used to facilitate the identifying of the various copies in the set.

Superfold Continuous Forms

Superfold continuous forms are printed successively in long continuous strips properly perforated between sets. This permits the use of various colors, grades, weights and widths of paper as desired. The strips are collated and folded together in packs of

500 or more sets of forms. Superfold forms are used in standard billing machines, bookkeeping machines or in regular typewriters equipped with carbon or ribbon controlling devices. They are most frequently used in the Elliott Fisher type of billing machine, the Fanfold Biller or in Addressographs.

This type of stationery is also furnished for use in typewriters when the typewriter is equipped with a continuous form attachment. Two to nine copies can be secured on a typewriter equipped with such an attachment. While this method is not as efficient as a regular billing machine, it is especially valuable to a large organization with smaller branches, or to smaller firms which do not require regular billing machines.

One-Time Continuous Forms

One-time, carbon interleaved, continuous forms are the most versatile of all continuous forms. They are made in various types to suit every possible office need. In these forms an inexpensive carbon paper is already interleaved in the form thus eliminating all the costly operations involved in handling carbon. The carbon, because it is so very inexpensive, can either be thrown away or used again for correspondence typing, memos, etc. One-time, carbon interleaved, continuous forms are adaptable to any typewriter, billing machine or bookkeeping machine without the need of attachments or gadgets. They are especially suitable where further prices, quantities back ordered, weights, or additional information is necessary, because the carbon can remain with the copies until such extensions are made.

Snapout Style Forms

The most flexible of all of the various types of business forms are the so-called snapout sets. This style of form is a multi-copy set made up as an individual form (not continuous) with all of the required copies pasted together and interleaved with an inexpensive one-time carbon paper. They are furnished in unit sets immediately available for use in any typewriter, accounting, bookkeeping, adding, or billing machine, tabulating equipment, or addressograph or, as is very frequently done, they can be written by hand.

After typing or writing, the forms and carbon are snapped apart in one quick pull, the carbon remaining with the pasted stub, the copies of the set loose for immediate sorting or distribution. Fingers need never touch the carbon. All unproductive operations are eliminated, such as collating, jogging, shuffling and aligning.

This style of form is usually manufactured on high speed rotary presses which automatically interleave the carbon, print, number, perforate and cut into individual sets. Most manufacturers have made available "standard" snapout sets, passing on to the user savings effected through the standardization of colors of paper, of size of form and other specifications, together with the economies of "gang-run" production where like orders are grouped in one run. Furnished in from two to five parts and in quantities as low as 2,500, these standard sets have been put to work saving time and money in thousands of organizations throughout the country.

The wide application of this style of form is due to its exceptional flexibility. As previously stated, they can be used on all types of equipment. In their manufacture, colors of paper can be freely used. The snapout stub can be placed at the top, the bottom or on either side. Various weights and grades of paper can be used. In a set the weights of the one-time carbon can be varied as well as the degree of intensity of finish. This makes possible the combination of a hard finish carbon near the top of a set, with a medium or intense finish carbon in the lower portion of the set, insuring legible copies throughout.

Wide and narrow leaves or long and short copies can be had in the same set. Carbons can be "strip-coated" or "die-cut" to prevent confidential information appearing on certain leaves in a set. Individual copies or a group of copies may be extended slightly from the balance of the leaves, so that they can be readily detached, the rest of the set remaining intact with the carbons still interleaved for further entry; or a form can be constructed so as to divide into two or more sections, each section remaining as a snapout unit available for further entry.

When on the same operation the number of copies varies, for one reason or another, it is very practical to have the form furnished with the proper number of copies to meet these variations. Let me give you two examples.

Use of Snapout Style Forms

A large manufacturer of electrical control devices operating branch offices in various parts of the country invoice their warehouse orders at the home office. The number of customer's invoice copies varied from 1 to 3, and the branch office copies varied from 4 to 5. To solve this problem they furnished their billing department with four different sets. Each set, though similar in appearance, is clearly identified by a large numeral printed on the stub, indicating the number of copies in the set. The billing clerk has only to select from a convenient tray the set which is tailor-made to fit the particular order she is billing.

Another firm using a combined bill and order system requires 15 copies in each set to provide the necessary forms for both invoicing and production. However, in back orders many of the copies provided in the regular set are not required. For this reason they have two forms made up, one with 15 copies, the other with only 11 copies. In this way they not only eliminate the handling of unnecessary copies on back orders, but they also effect a substantial saving in material cost.

The snapout form, more than any other, lends itself to the combination of related records, as can readily be seen from this rather detailed explanation. In short, it can be "tailor-made" to fit the application regardless of how complex it may be. It has proven to be efficient on forms having 2 parts as well as on forms requiring 18 parts, and on applications with an annual requirement of only one thousand sets to a requirement of three million sets.

Because of its flexibility, adaptability, and economy, its many labor-saving features and its wide range of uses, this style of form has in a very short space of time received wide consumer acceptance.

Combining Forms

One of the most direct savings to be secured in the handling of office forms is accomplished through the combination, or writing at one time, of related records. Improvements in office machinery, such as the electrification of billing machines and the production of electric typewriters, has made it possible to secure up to 18 legible copies at one writing. Thus it has become physically possible to

combine related records and secure the required legibility on all copies. Wherever it is feasible in the light of past experience and foreknowledge of future requirements, the process of combining many separate tasks into one is becoming more and more general. One result of this tendency is the process of combining the writing of the order with the billing of the material in those lines and types of business where such a combination makes for expedition and economy. One very successful combination of form which effected considerable economies for its user included in one set the following:

Customer's Invoice in quadruplicate
Package Label
Shipping Copy
Order Department Copy.
Follow Up Copy
Shop Office Copy
Sales Department Copy
Customer's Acknowledgment
Representative's Acknowledgment
and a representative's Invoice Copy.

—a total of 15 parts. The customary procedure in combined bill and order sets is to type at the initial writing all information which is common to both. The order portion of the form is separated from the balance of the set, leaving the invoice portion intact so that when shipment has been made, the invoice can be extended and completed. It is not unusual in combinations of this kind to effect savings of 50 per cent in clerical effort, since approximately 85 or 90 per cent of the invoice is prepared at the time the order is written. Many firms have successfully combined their purchase order writing with the preparation of the necessary receiving department copies. The receiving department portion of the form is sent to the receiving department intact where it is held in a suspense file until shipment is received. Upon receipt of material the receiving report is taken from the suspense file, the quantity received and other essential information noted and the copies dispatched in their customary manner. An additional supply of receiving reports should be furnished the receiving department so that when partial delivery is made the receiving department can

prepare a receiving report for the partial quantity received, holding the pre-prepared receiving report in the suspense file until final shipment is effected.

In this connection the writing of the acknowledgment of the order combined with the writing of the order itself gives to the customer an exact duplicate of the order as understood and accepted on the books of the company. Thus the confusion of mistakes occurring in orders with the needless additional expense and possible loss of goodwill on the part of the buyer is removed.

Hectograph and Manifolding Systems Combined

Many complex problems have been efficiently and economically solved through the combination in one set of forms (either continuous or individual snapout set style) of manifold copies and a duplicating master.

On some applications, which because of their nature require the use of a duplicating system to provide the necessary copies, essential copies may be needed in advance of the preparation of the copies on the duplicator. This can be accomplished by designing a set having a hectograph master for the first copy, with the "quick" copies comprising the balance of the form. Thus, as a by-product of preparing the hectograph master, copies are available for immediate use.

If a gelatin system is used, the set may be typed on a machine equipped with a hectograph ribbon, and the first leaf may be printed in hectograph ink. If a direct process or liquid system is used, a sheet of one-time hectograph carbon is collated in the set, face up in back of the first leaf or master.

Combinations of this sort are very effective and assist greatly in simplifying office procedures.

A nationally known manufacturer of electric motors using a combined "order and invoice" system prepares a 13-part set, the first copy of which is a gelatin process master printed in hectograph ink on a suitable master paper stock. The remainder of the set contains all of the required production copies which are dispatched immediately after the order is typed. The original copy, or master, is primarily used for the duplicating of the invoices and accounting department copies and is held in a suspense file until shipment has been made. However, on an order for more than

one motor this master is used immediately to prepare a packing slip and a test card—one of each for each motor ordered. After the necessary packing slips and test cards have been run, the master is filed until shipment of the order.

In another case a set has been designed containing two spirit masters together with four additional "quick" copies for production control and purchasing. One master is used to prepare material requisitions and run of the required production and shipping copies, the other held for further extension and the preparation of invoice copies. The "quick copies" serve a vital function in production and purchasing control.

Preparation of Hectograph Masters Simplified

On those applications where there is a wide variance in the number of copies required, or where the nature of the copies is such that they do not lend themselves to a manifolding system, the spirit or gelatin type of duplicating system can be used advantageously. Here, too, however, thought should be given to the elimination of non-productive operations. The masters for the gelatin process of duplicating are usually produced, when typewritten, through the use of a hectograph typewriter ribbon which deposits an aniline ink record on the face of the master. This record is transferred to a gelatin roll in a duplicating machine from which a large number of copies may be secured.

With the direct transfer or spirit process, however, the aniline dye record must be made on the back of the master. When prepared in longhand or on a standard typewriter, a sheet of hectograph carbon must be collated face up in back of the master. To eliminate these non-productive operations and avoid the handling of the super-sensitive hectograph carbon, a master set, consisting of a sheet of master paper and a hectograph carbon, has been designed. With this master unit it is not necessary to touch the hectograph carbon surface at any time. It is folded inside, separated from the master with a slip sheet which is removed immediately before the master is written. On those applications where additional information is required on the master after the original writing and perhaps in some other department, the master unit can be freely handled without coming in contact with the carbon impression on the master or the hectograph carbon. Another

advantage of the master unit is that the master may be run on the liquid type duplicator without separating the carbon and master, making possible the addition of further information or changes at a later date and the re-use of the master to produce additional copies. Because of an uncarbonized strip along the bottom edge of the carbonized portion of the master set, it is possible to separate the carbon from the master without coming in contact with the hectograph carbon surface.

One of the major economies effected through the use of these master units is that printed forms may be duplicated. The unit may be printed on the face of the master after the hectograph carbon has been folded in position in back of the master copy and before the slip sheet has been inserted. This printed impression will leave a heavy clean-cut deposit of carbon on the master sheet, thus making possible the reproduction of the printed form as well as the written matter.

A further current development of the master unit for spirit duplicating is a set constructed so as to provide two separate masters from one sheet of hectograph carbon, thus substantially reducing the cost. This set is so designed that when the second master is prepared, the carbon paper which has been used in preparing the first master is reversed from left to right and from top to bottom, thus utilizing all of the available carbon surface.

Employ Efficient Methods on Pencil-Written Forms

Continuous forms are supplied for use in autographic registers, which are manifolding devices for producing at one writing, two to five hand-written copies of business records. The forms are furnished in packs of 75 to 500 sets, depending upon the application and type of machine used. They are printed in long continuous strips in superfold style and folded flat on the perforations between the sets. These forms can be furnished consecutively numbered in sets, with the copies of the sets in various weights, colors and grades of paper.

When the forms are loaded in the autographic register, they are fed over a metal writing surface. Leaves of carbon paper from a roll of carbon paper contained in the machine are threaded between the leaves of the set. As each set of forms is written and extracted from the register, the next set moves into writing position auto-

matically, with all copies of the set in exact alignment and the carbon paper still interleaved. Fresh writing surface of carbon is obtained by periodically extracting the worn carbon, which automatically unwinds unused carbon from the roll contained in the machine. The purpose of this detailed explanation of the operation of an autographic register is to show how simply all of the advantages of continuous forms can be secured for pencil-written records requiring manifold copies. Thus, on records such as sales slips, delivery tickets, receiving records, bills of lading, etc., all non-productive and, consequently, costly operations can be eliminated.

Time Saving Possible

Non-productive, or waste operation, however small, must be eliminated if costly overtime is to be eliminated. If we figure how much time is wasted in non-productive effort in the handling of our ordinary business form, we will find that on a 12-part form, having an average of 5 lines of typing, 78 per cent of the operator's time is spent in stuffing carbons, jogging, inserting, realigning, adjusting, and removing carbons. This may be an extreme case but it is still true. The accompanying chart, made after careful time study, shows the high percentage of typing which can be saved through the elimination of these non-productive operations —stuffing carbon, jogging, inserting, realigning, adjusting, and unshuffling carbons.

Number of Parts to Form	*For Average of 5 Lines of Typing*	*For Average of 10 Lines of Typing*	*For Average of 15 Lines of Typing*
2	38%	23%	17%
3	46	30	23
4	55	38	30
5	60	43	34
6	64	47	37
7	68	51	42
8	70	54	45
9	72	57	47
10	74	59	50
11	76	62	52
12	78	64	55